THE EFFECT OF REPERTORY GRID VARIATIONS ON CONSTRUCT DIFFERENTIATION

By

CHAD LAURENCE HAGANS

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By

Chad Laurence Hagans

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Chairperson: Franz R. Epting, Ph.D.
Major Department: Psychology

Although variations in repertory grid technique have existed since its introduction, research regarding the effects of such variations on measures derived from the grid has begun only recently. This research has investigated four variations in grid technique: 1) sorting technique (triadic vs. dyadic sorts), 2) elicitation method (difference vs. opposite methods), 3) element valence (positive vs. split-valenced elements, and 4) rating direction (rating on an element-by-element basis vs. rating on a construct-by-construct basis). Although the results of this research have revealed significant effects of each of these grid variations on construct system differentiation, the conclusions reported in the literature are tentative, as most results await replication and further explanation. Furthermore, no research to date has investigated the combination of these variations in grid technique and their potential interaction effects on construct system differentiation.

The current study tested these variations in grid technique and their interaction effects with 289 undergraduates from the University of Florida who completed 1 of 16 different versions of the repertory grid. These variations were defined by fully crossing two different levels of the four factors mentioned above.

Results indicated that higher levels of differentiation were associated with the difference method of elicitation, particularly when the element set was positively valenced. Rating direction had a significant effect only on Kelly's original triadic difference version of the grid, with higher levels of differentiation being associated with rating on a construct-by-construct basis. Explanations for these effects emphasize the substantial psychological differences that can be associated with sometimes subtle variations in repertory grid technique, and these are interpreted within the broader literature focusing on repertory grid effects.

CHAPTER 1
INTRODUCTION

First introduced and described by Kelly (1955) in The Psychology of Personal Constructs, the Role Construct Repertory Test (repertory grid) has been the predominant research tool within the field of personal construct psychology in the nearly 50 years since its inception. The purpose of the grid is to elicit an individual's personal constructs, which are "way[s] in which two elements [things] are similar and contrast with a third" (Kelly, 1955, p. 61). A personal construct, therefore, is a mental abstraction or dimension of meaning that allows a person to construe and make distinctions among things in his or her environment. An example of a personal construct is "tall" versus "short," which would presumably serve primarily to construe people and make distinctions among them according to their relative height (Kelly, 1955). As a function of its purpose in distinguishing things from each other, a personal construct is bipolar ("tall" versus "short;" Kelly, 1955). The purpose of this dissertation is to examine the effects of variations in repertory grid technique on a popular quantitative measure derived from the grid: construct differentiation.

In the context of the original formulation of the repertory grid (Kelly, 1955), the poles of a personal construct are elicited by asking an individual how two things are alike and thereby different from a third. For example, an individual may be presented with three people he or she knows well and then asked to "identify any important way in which two are alike and thereby different from the third" (Kelly, 1955, p. 61). The individual may respond, for example, that "Bob and Sue are both tall, whereas Bill is short.” In this case the two poles of the individual's bipolar personal construct “tall” versus “short” have been elicited. The process may be repeated any number of times, but in most cases a sample ranging from 6 to 20 personal constructs is elicited as part of the repertory grid technique. To complete the procedure, the individual then rates the figures (usually people) on the grid along the elicited constructs. The grid may then be evaluated qualitatively and/or quantitatively, and a large number of evaluation methods have been developed and utilized in the empirical literature (see Epting, Probert, & Pittman, 1993).

Not only are there various methods for evaluating a repertory grid, but there are also various methods of administering the grid and eliciting personal constructs. A number of authors have called attention to the title of “Role Construct Repertory Test” (reptest) as a misnomer, given that it is neither a test or a single technique, but rather a collection of methods. “Grids are like people,” as Fransella and Bannister (1977, p. v) have observed, “they come in many shapes and sizes.”

Several scholars have recognized the predominance of the utilization of the repertory grid in the empirical literature in personal construct psychology. Looking back, Bannister (1985) noted that the grid “seemed destined to monopolize the theory” (p. xii), and R. Neimeyer, Baker, and Neimeyer (1990) noted that over 90% of the empirical research in personal construct psychology has utilized one or more forms of the grid. Although the field has relied so heavily on the grid as its preeminent research tool in the nearly 50 years since its inception, empirical efforts to critically appraise the tool itself have begun only recently (Caputi & Reddy, 1999; Hagans, Neimeyer, & Goodholm, 2000). These efforts have focused primarily on the effects of variations in repertory grid technique on quantitative and qualitative measures derived from the grid.

Variations in repertory grid methodology were already apparent in Kelly's (1955) earliest discussion of the technique, which outlined a number of significant modifications that could be made in relation to selecting the elements used for comparison, eliciting the constructs, and rating the elements along the constructs (see Epting et al., 1993). Despite the enormous range of possible repertory grid variations, all grids share at least three common features: a set of elements (e.g., people), a set of constructs, and a series of ratings of the elements along the constructs.

Recent efforts to study the effects of variations in repertory grid technique on measures derived from the grid have focused on four such variations: 1) the sorting technique (i.e., how many elements are presented to the participant at a time), 2) the elicitation method (i.e., whether the method asks participants to nominate a “difference” or an “opposite” in formulating a construct), 3) the valence of the element set (i.e., whether the elements are all positive or are a mixture of positive and negative elements), and 4) the direction of the ratings of the elements on the grid (i.e., whether participants rate the elements on an element-by-element basis or a construct-by-construct basis). These variations in grid technique and the research that has studied their effects on measures derived from the grid are described and evaluated in the following chapter.

CHAPTER 2
REVIEW OF THE LITERATURE

The purpose of this chapter is to provide a review and evaluation of the literature examining the effects of variations in repertory grid methodology on one measure derived from the grid: construct differentiation (i.e., "cognitive complexity;" Bieri, 1955; Landfield, 1971). Construct differentiation was chosen for study because of its longstanding role in the empirical literature utilizing the repertory grid. Introduced by Bieri (1955) in the same year that Kelly (1955) first published the theory, the term "cognitive complexity" reflects the relative number of different dimensions of judgment (personal constructs) available to an individual in assessing the world. A system composed of few constructs presumably constrains the individual, limiting him or her to relatively few perspectives. In contrast, a more "complex" (i.e., more well-differentiated) system provides a more multi-dimensional framework, allowing the individual to more capably differentiate among various facets or features of his or her experience (Adams-Webber, 1998; R. Neimeyer, G. Neimeyer, & Landfield, 1983).

In relation to the repertory grid, constructs are differentiated if they are used independently to construe the same set of elements. For example, a participant's ratings of the elements on a repertory grid along the construct "tall vs. short" would presumably bear no systematic relation to his or her ratings of the same elements along the construct "outgoing vs. shy." As such, the two constructs "tall vs. short" and "outgoing vs. shy" would be independent, and therefore differentiated, from each other. Levels of construct differentiation are determined by the numbers of constructs and elements on the grid that are viewed by the participant as being independent of each other.

As mentioned in the previous chapter, recent efforts to study the effects of variations in repertory grid technique on construct differentiation have focused on four such variations: 1) sorting technique, 2) elicitation method, 3) element valence, and 4) rating direction. These variations and their corresponding literature are described and evaluated below, preceded by an elaboration of the concept of construct differentiation.

Variations in Grid Technique

Construct Differentiation. The concept of construct differentiation relates to the broader concept of cognitive differentiation elaborated by Bieri (1966). Following Kelly (1955), Bieri (1966) posited that each person has a system of dimensions of meaning (i.e., personal constructs) which he or she uses in construing his or her social environment, and that the characteristics describing the relations among these dimensions refer to a person's cognitive structure. The concept of cognitive complexity-simplicity refers to the relative differentiation of a person's system of dimensions (i.e., personal constructs) for construing his or her social environment. A more cognitively complex person has available a more differentiated system of personal constructs for perceiving his or her social environment than does a less cognitively complex individual.

In Bieri's (1955) method of measuring cognitive complexity, the ratings of repertory grid elements along constructs are used to derive a quantitative representation of an individual's level of construct system differentiation. Construct differentiation is measured by comparing each rating in a row with the rating directly below it (i.e., for the same element on the grid) in the other rows on the grid matrix. In comparing any two construct rows, a score of one is given for every exact agreement of ratings of any one element. This matching procedure is carried out for all possible comparisons, and the scores for each comparison are added to give one total score. Because there are 45 possible row comparisons in a 10 X 10 grid matrix, the highest possible score is 450, indicating that the individual rated each of the elements on the grid the same along each of the constructs. Such an individual would be relatively cognitively simple because he is using his construct dimensions in an identical manner to construe all of the elements on the grid. A person with a score as low as 100 is presumed to be relatively cognitively complex because he or she uses constructs differently and independently in discriminating among elements (Bieri, 1966).

Sorting Technique. Kelly (1955) regarded a personal construct as a perceived basis of comparison and distinction among elements of experience, and his original procedure for eliciting constructs preserved this feature. In particular, he presented the person with three elements at a time (i.e., triadic sorts) and asked them to "identify an important way in which two of them are alike and thereby different from the third." This was known as the "minimum context" form. "Minimum context" refers to the assumption that developing a construct requires the recognition of some similarity between two or more elements in a way that distinguishes them from at least one other element (i.e., Kelly's [1955] Construction Corollary). For this reason, developing a construct requires a minimum of three different elements.

A significant departure from this procedure can be traced to Landfield (1971), who introduced the "dyadic" sorting technique. In Landfield's study of psychotherapy, participants were presented with only two elements at a time and asked to "think about these two people. . . . Are the two people alike in some way? Or are they different in some way?" (Landfield, 1971, p. 161). If the two were viewed as alike, then the person was instructed to scan the list of remaining elements to find a person who was different, and that difference then constituted the contrast pole of the construct. If the two people were found to be different, then the description of each anchored the two poles of the construct.

Landfield developed the method in order to simplify the elicitation procedure. As he observed, "A subject, when restricted to finding a similarity prior to stating a difference, occasionally is unable to respond. However, the subject may perceive all three acquaintances as similar and be able to think of someone outside the triad as being different" (Landfield, 1971, p. 45). The dyadic sorting technique addresses this concern by allowing the individual to identify a similarity or a difference, without making the additional demand that the contrast pole applies to either of the elements in the sort (though it must apply to at least one other element in the full set of elements in the grid).

The relative simplicity of the dyadic sorting technique has been noted by a number of researchers. Salmon (1976), for example, used the dyadic technique in her work with children, noting that the "original [triadic] method . . . may do less than justice to the repertoire of constructs which may be possessed by pre-school and junior school children" (p. 27). Although the dyadic procedure has been used in a number of studies (Keen & Bell, 1980; Landfield, 1971; Caputi & Reddy, 1999), only recently has research attention been directed at the method through systematic comparisons of it with the more common triadic method (Caputi & Reddy, 1999; Hagans et al., 2000; G. Neimeyer et al., in press; see below).

Elicitation Method. In addition to variations in the sorts used (triadic vs. dyadic) to elicit the constructs, variations have been introduced in relation to the method of construct elicitation itself. The "difference" method follows Kelly's (1955) original preference for asking individuals to identify "how two people are alike and thereby different from the third." An important alternative, however, was introduced by Kelly (1955) and studied by Epting, Suchman, and Nickeson (1971). In this variation, participants were first asked to identify how any two of the three elements were alike, and then to nominate the opposite of that likeness. For example, John and Joan may be viewed as alike in that they are both "good-natured" individuals, the opposite of which is "ill-tempered." Epting et al. (1971) found that this "opposite" method enhanced the bipolarity of the constructs elicited, suggesting the important impact of the procedure on the nature of the constructs it elicits.

Hagans et al. (2000) have nominated two additional ways in which the opposite method might affect the nature of the constructs elicited. First, encouraging participants to produce opposites may invite more extreme contrasts. Instructions to produce the "opposite" of "hardworking," for example, may invite the consideration of "lazy" as a contrast pole. By comparison, instructions to identify how another element is "different" (i.e., the difference method) might invite less extreme contrasts, such as "more easygoing" or simply, "less driven." In addition, Hagans et al. (2000) noted that with the difference method, the contrast pole necessarily must be located within the list of elements on the grid and therefore must apply to at least one of them. By contrast, the opposite method does not impose this requirement; having identified two elements as "intelligent," for example, there is no requirement that its opposite (e.g., "stupid") characterizes any of the elements in the grid.

As Hagans et al. (2000) point out, "these differences between the opposite and difference methods of construct elicitation carry direct implications for the measure of construct system differentiation" (p. 158). Simply put, any elicitation method that demands the distribution of ratings across both poles of the constructs should, by definition, increase levels of differentiation, whereas any that discourages such distribution should decrease it. Both the procedural differences (the difference method requiring such distribution and opposite method not) and the extremity differences (opposite methods inviting more extreme contrasts) suggest that the opposite method would produce less complex, less well-differentiated construct systems. This is precisely what researchers have found to date (Caputi & Reddy, 1999; Hagans et al. 2000).

In addition, data from Hagans et al. (2000) and G. Neimeyer et al. (in press) have documented the relatively more extreme and negative contrast poles that have been associated with the use of the opposite method of construct elicitation. Further, Hagans et al. (2000) have found a significant, inverse relationship between the degree of negativity and levels of differentiation; the more negative and extreme the "opposite" construct poles, the less well-differentiated the construct system was. This finding provided the first provisional support for the notion that the lower levels of differentiation associated with constructs elicited through the opposite method are due to the more extreme and negative nature of the contrast poles they elicit. Simply put, individuals may be less likely to apply more extreme and negative contrast poles to the elements on their grids, thereby reducing the level of differentiation associated with the grid. No research to date, however, has directly assessed this explanation, or produced evidence that clarifies the exact mechanism(s) responsible for the lower levels of differentiation associated with the opposite method of construct elicitation.

Element Valence. Beyond the sorting technique (triadic vs. dyadic) and the elicitation method (difference vs. opposite), a third feature represents a common variation in repertory grid methodology, and it concerns the nature of the elements used in the grid.

Kelly's (1955) original Role Construct Repertory Test utilized a set of role titles, and he placed few restrictions on the nature of the role titles to be included in the grid, except that they "be sufficiently representative of all the people with whom the subject must relate" (p. 230), a position that has received some support in the literature (Mitsos, 1958). Stringer (1979), however, was among the first to vary the element set systematically, studying the effects of these variations on measures of construct system differentiation. He found that the use of particular individuals as elements in the grid produced greater differentiation than the use of more global role descriptions, prompting him to conclude that "different forms of the grid . . . do not elicit the same kinds of construing" (p. 96), and that "there were considerable alterations in the structure of their personal constructs when they moved from construing roles to construing individuals, or vice-versa" (p. 98).

Other lines of research support the general idea that element selection is a critical component in repertory grid research. A longstanding line of work with vocational construct systems, for example, has demonstrated that more negative elements (i.e., occupations) are viewed with consistently greater differentiation than are positive occupations (Bodden & Klein, 1973; see G. Neimeyer, 1992 for a review). For example, Moore, Neimeyer, and Marmarosh (1992) systematically varied the valence of the occupational elements in their study of 159 undergraduates. Results indicated that "disliked" occupations were associated with significantly higher levels of construct differentiation than were "liked" occupations, an effect that was subsequently replicated in the work of Parr and Neimeyer (1994).

Taken together, the results of this work suggest that variations in the valence of the element set used in the repertory grid may exert a significant impact on aspects of construct system structure. This is consistent with the broader concerns expressed by Bell, Vince, and Costigan (1999) regarding the significant impact of elements, rather than constructs, in determining structural features of the personal construct system.

Rating Direction. A final consideration concerns the direction in which repertory grid ratings are made. This subtle procedural variation has recently begun to receive attention in the literature on repertory grid methods. The variation concerns whether the ratings of the elements along the constructs are made "down" (on an element-by-element basis) or "across" (on a construct-by-construct basis) the grid.

The earliest work in this area was reported by Costigan, Dowling, and Marsh (1991), who observed that some researchers "favoured the method of rating elements in grids separately, rather than across rows" (p. 2), and this is indeed the method that has been the favored procedure in a number of research programs (e.g., Landfield, 1971). Rating down by elements involves the individual in rating one element at a time along the full set of constructs before moving on to the second element to do likewise, and so on. Citing Kelly's (1955) elicitation of constructs within the context of multiple elements, Costigan et al. (1991) noted the value of making ratings within the full view of previous ratings of other elements, rather than focusing on one element at a time, without ongoing access to previous ratings of other elements in the grid. Costigan and her colleagues hypothesized that the element-by-element ratings (i.e., rating down the grid columns) would decrease levels of differentiation when compared to construct-by-construct ratings (i.e., rating across element columns while holding the construct constant, and therefore inviting a comparison of one's ratings of various elements in the grid).

Work by Epting, Prichard, Wiggins, Leonard, and Beagle (1992) provided support for this hypothesis; differentiation levels were lower in the grid formats that instructed participants to complete their ratings across elements (holding constructs constant and rating all elements along the first construct before moving to the second one, and so on) than in those that instructed participants to rate down the constructs (holding the elements constant and applying all constructs to a given element before moving on to the second element, and so on).

As G. Neimeyer et al. (in press) noted, however, both the Costigan et al. (1991) and the Epting et al. (1992) studies introduced a confound into their procedures insofar as neither study distinguished rating direction (down vs. across) from rating visibility (i.e., whether or not participants had access to their prior ratings). In both studies, participants had access to their prior ratings when they rated across the elements in a construct-by-construct series of ratings, but they did not have access to these ratings when they rated down the columns in an element-by-element series of ratings. It is not clear from their research, therefore, whether the reduced differentiation associated with rating down by elements was a function of the direction of the ratings or the fact that participants did not have access to their prior ratings as they completed the ratings procedure.

Addressing this confound, G. Neimeyer et al. (in press) found that the effects of rating direction persisted, even when participants were given complete access to their ratings in both the “down” and “across” conditions. Although these findings ruled out the potentially confounding influence of access to prior ratings, a satisfactory explanation of the effect was not developed in the study, leaving it for future work to provide a replication and develop potential explanations of this effect.

Rationale

Although variations in repertory grid technique have existed since its introduction (Kelly, 1955), research regarding the effect such variations on measures derived from the grid has begun only recently (Caputi & Reddy, 1999; Costigan et al., 1991; Epting et al., 1992; Hagans et al., 2000; G. Neimeyer et al., in press). This research has investigated four potential variations in grid technique: 1) sorting technique (triadic vs. dyadic sorts), 2) elicitation method (difference vs. opposite methods), 3) element valence (positive vs. split-valenced elements), and 4) rating direction (rating on an element-by-element basis vs. rating on a construct-by-construct basis). Although the results of this research have revealed there are significant effects each from these grid variations on construct system differentiation, the conclusions reported in the literature are tentative, as most results await replication and further explanation (Caputi & Reddy, 1999; Costigan et al., 1991; Epting et al., 1992 Hagans et al., 2000; G. Neimeyer et al., in press). Furthermore, no research to date has utilized a combination of these variations in grid technique to examine their potential interaction effects on construct system differentiation.

The purpose of this study was to examine the effects of variations in all four of the variations in the repertory grid mentioned above on construct differentiation. Specifically it addressed 1) variations in the method of construct elicitation (difference method vs. opposite method), 2) variations in the sorting technique used to elicit the constructs (triadic vs. dyadic sorts), 3) variations in the valence of the elements used to generate the constructs (positively-viewed vs. a mixture of positively- and negatively-viewed elements), and 4) variations in the direction in which the grid ratings are performed (on an element-by-element basis vs. a construct-by-construct basis). The study also examined the interactions among the variations in the four features mentioned above in relation to construct differentiation.

Need

This study has implications for past and future research in personal construct psychology utilizing the repertory grid as its primary measurement tool. One important purpose is to determine whether variations in the grid systematically inflate or deflate construct differentiation. If it were shown that specific variations in grid methodology affect construct differentiation in this manner, the results of past research would need to be reevaluated in this light. Furthermore, future studies would need to take into consideration the effects of these variations in formulating the repertory grid procedures used, and in drawing conclusions based on the results obtained from the research.

Hypotheses

The following set of hypotheses were tested in this study:

1. Varying the sorting technique (dyadic vs. triadic sorts) used in the repertory grid will significantly affect construct differentiation.
2. Varying the elicitation method (difference vs. opposite) used in the repertory grid will significantly affect construct differentiation.
3. Varying the valence of the element set (positive vs. split-valenced) used in the repertory grid will significantly affect construct differentiation.
4. Varying the rating direction (element-by-element vs. construct-by-construct) will significantly affect construct differentiation.

Because no previous research has investigated interactions among the four variations mentioned above, no hypotheses are presented in this regard. However, the interaction effects are reported in Chapter 4 and discussed in Chapter 5.

CHAPTER 3
METHODOLOGY

Participants

A total of 289 undergraduate students enrolled in various psychology courses at the University of Florida (70% women; 30% men; mean age = 20.5) volunteered to participate in a "study of interpersonal relationships." They received experimental credit in exchange for their participation, and were treated according to American Psychological Association guidelines for the ethical treatment of human participants.

Participants were randomly assigned to one of sixteen conditions defined by fully crossing four factors, each with two levels. The four factors corresponded to the variations in the repertory grid described above: 1) Elicitation Method (opposite vs. difference method), 2) Sorting Technique (triadic vs. dyadic sorts), 3) Element Valence (all positive vs. split-valence), and 4) Rating Direction (element-by-element vs. construct-by-construct). The assignment of participants to one and only one of these conditions resulted in a 2 x 2 x 2 x 2 between subjects design. The specific instructions for each level of each of the four factors are described below.

Instruments

In all cases, participants were administered a 10 x 10 version of the repertory grid, with 10 elements serving as the basis for eliciting a set of 10 different constructs, according to the following factors.

Elicitation Method. This factor consisted of two levels, the opposite method and the difference method. Instructions for the difference method followed the traditional instructions offered by Kelly (1955). Participants in the triadic sorting technique (see below) were asked to "identify any way in which two of the elements were alike and different from the third." The way two of the elements were alike served as the emergent pole of the construct, and the way the third was different served as the contrast pole. By contrast, those participants in the dyadic difference conditions were presented with only two elements and asked for a "way in which they are alike or different." If a difference was reported (e.g., "he is happy whereas she is unhappy"), the two poles were entered onto the grid according to which was identified first (emergent) versus second (contrast). If a likeness was reported, however, the contrasting construct pole was elicited by asking participants to review the remaining members of the element set, to identify an element that was different from the construct pole identified, and to describe the difference. This procedure follows the steps outlined in Landfield (1971) in describing the dyadic difference method.

Participants in the opposite conditions were asked to elicit the emergent pole as per the instructions above. To identify the contrast pole, however, they were instructed to identify the "opposite" of the emergent pole to formulate the contrasting pole. This procedure follows the method outlined by Kelly (1955) in describing the opposite method of construct elicitation, and was used in previous research in this area as well (Hagans et al., 2000; G. Neimeyer et al., in press).

Sorting Technique. This factor consisted of two levels, triadic sorts and dyadic sorts. Participants in the triadic sort conditions were given three elements at a time and instructed “to identify any way in which two are alike,” developing the contrast pole according to which Elicitation Method condition (see above) to which they were assigned (i.e., opposite or difference method). Participants in the dyadic sort conditions were given two elements at a time and asked to identify any “similarity or difference between these two people,” developing the contrast pole according to the Elicitation Method condition (see above) to which they were assigned. These procedures follow related research in this area (Hagans et al., 2000; G. Neimeyer et al, in press).

Element Valence. This factor consisted of two levels, all positive elements and split-valence elements. All positive elements included a set of 10 positively valenced individuals. Participants were instructed to “think about a set of 10 different people whom you know personally, and generally like. These can be family, friends, boy/girlfriends, acquaintances, or others. The only restriction is that you must know them personally and you must generally like them.” Split-valenced element sets were designed to include positively and negatively valenced elements. In this condition, participants were asked to identify a set of 5 positive elements (as per the instructions above) and 5 negative ones. To generate the negative elements, participants were instructed to “think about a set of 5 different people whom you know personally, and generally dislike. These can be family, former friends, ex-boy/girlfriends, acquaintances, or others. The only restriction is that you must know them personally and you must generally dislike them.” In the split-valenced condition, the five positive and five negative elements were all included on the grid to form the full set of 10 elements.

Rating Direction. This factor consisted of two levels, rating on an element-by-element basis vs. rating on a construct-by-construct basis. In both cases all 10 elements were rated along all 10 constructs using a 7-point rating scale (+3 +2 +1 0 -1 -2 -3) which resulted in a matrix of 100 ratings. In the element-by-element conditions, participants rated one element at a time along each of the 10 constructs before moving on to the rate the second element along each of the 10 constructs, and so on. In other words, ratings were made by holding the element constant and rating that element along every construct before proceeding to the next element. In contrast, in the construct-by-construct conditions, participants rated each of the 10 elements along a given construct before moving on to rate the set of 10 elements along the second construct, and so on. In other words, ratings were made by holding the construct constant and rating each element along it before moving to the next construct. The first level (element-by-element) corresponds to the "intra-element" condition specified by G. Neimeyer et al (in press), whereas the second level (construct-by-construct) corresponds to the "inter-element" condition specified in that work. In all cases, participants had ongoing access to their prior ratings of the various elements along the various constructs.

The combination of these four factors resulted in each participant's completion of one and only one type of repertory grid. The 16 grid combinations were as follows, and full instructions for each of the 16 conditions are depicted in the Appendix:

1. Opposite Method/Triadic Sort/Positive Valence/Rating Down
2. Opposite Method/Triadic Sort, Positive Valence/Rating Across
3. Opposite Method/Triadic Sort/Split Valence/Rating Down
4. Opposite Method/Triadic Sort/Split Valence/Rating Across
5. Opposite Method/Dyadic Sort/Positive Valence/Rating Down
6. Opposite Method/Dyadic Sort/Positive Valence/Rating Across

7. Opposite Method/Dyadic Sort/Split Valence/Rating Across
8. Opposite Method/Dyadic Sort/Split Valence/Rating Down
9. Difference Method/Triadic Sort/Positive Valence/Rating Down
10. Difference Method/Triadic Sort, Positive Valence/Rating Across
11. Difference Method/Triadic Sort/Split Valence/Rating Down
12. Difference Method/Triadic Sort/Split Valence/Rating Across
13. Difference Method/Dyadic Sort/Positive Valence/Rating Down
14. Difference Method/Dyadic Sort/Positive Valence/Rating Across
15. Difference Method/Dyadic Sort/Split Valence/Rating Across
16. Difference Method/Dyadic Sort/Split Valence/Rating Down

Procedure

The random assignment of participants to one of these conditions resulted in the cell sizes as depicted in Table 1. In each case, participants were brought into the laboratory in small groups and given written instructions in how to complete their repertory grids. The experimenter and a research assistant remained in the room to address any questions regarding the procedure, which consisted of three stages completed in step-wise fashion. First, participants were instructed to identify particular people who filled each of the 10 role titles, as described in the Element Valence section above. Second, participants were either provided with dyadic or triadic sets of elements (as described in Sorting Technique, above) and instructed to elicit a set of 10 constructs by the systematic comparison of sets of these elements (as described in the Elicitation Method section above). Finally, following the construct elicitation stage, participants were instructed to rate all elements along all constructs (as described in the Rating Direction section above).

The completion of the repertory grid resulted in a matrix of 100 ratings (10 constructs by 10 elements), and this matrix served as the basis for computing cognitive differentiation scores, which constituted the dependent variable in this study. Levels of construct differentiation were calculated using Landfield's (1971) Functionally Independent Construction (FIC) score. FIC scores indicate the number of functionally independent construct and element clusters in the grid, with scores ranging from a low of 2 (one large cluster of constructs and one large cluster of elements) to a high of 20 (10 well-differentiated constructs and 10 well-differentiated elements (see Landfield, 1971; Landfield & Schmittdiel, 1983 for details of scoring). Total FIC scores are the most common measure of differentiation in the personal construct literature, and have demonstrated high test-retest reliability across time (Feixas et al., 1992; Russ-Eisenschenk & Neimeyer, 1996). They do not represent the only measure of construct differentiation in the literature, however, nor are they exempt from criticism along conceptual and operational grounds (see Soldz & Soldz, 1989).

CHAPTER 4
RESULTS

Descriptive Statistics

Fully crossing the four factors in the study (sorting technique, elicitation method, element valence, and rating direction) yielded 16 cells of descriptive statistics. Means and standard deviations of FIC scores were computed for each of the 16 cells in the study, and are presented in Table 1.

Hypothesis Tests

In order to test the hypotheses in this study, mean FIC scores were subjected to a 2 x 2 x 2 x 2 between subjects analysis of variance (ANOVA). The four factors referred to Elicitation Method (opposite vs. difference), Sorting Technique (triadic vs. dyadic), Element Valence (positive vs. split-valenced), and Rating Direction (element-by-element vs. construct-by-construct).

Hypothesis 1. Hypothesis 1 predicted that varying the sorting technique (triadic vs. dyadic) would significantly affect construct differentiation (FIC). Although triadic sorts yielded higher FIC scores (M = 8.48; SD = 3.89) than did dyadic sorts (M = 8.25; SD = 4.25), results of the ANOVA revealed that the difference was not statistically significant, F (1, 273) = 0.34, ns. Therefore, Hypothesis 1 was not supported.

Hypothesis 2. Hypothesis 2 predicted that varying the elicitation method (difference vs. opposite) would significantly affect construct differentiation (FIC). Results of the ANOVA revealed that the difference method (M = 9.14; SD = 4.31)

Table 1: Mean Differentiation Scores (and Standard Deviations) by Condition

Elicitation Method	Sorting Technique	Element		Valence	
		Positive		Split	
		Rating Down	Rating Across	Rating EBE	Rating CBC
Difference Method	Triadic Sorts	11.41 (3.37)	10.32 (4.74)	9.88 (4.62)	6.55 (3.23)
	Dyadic Sorts	9.00 (4.44)	10.30 (4.21)	8.19 (4.46)	8.00 (3.72)
Opposite Method	Triadic Sorts	5.63 (3.59)	7.19 (3.88)	8.21 (4.33)	8.67 (3.38)
	Dyadic Sorts	6.86 (4.67)	6.88 (4.51)	8.75 (4.02)	8.00 (4.00)

Note: “Rating EBE” refers to ratings performed on an element-by-element basis; “Rating CBC” refers to ratings performed on a construct-by-construct basis.

yielded significantly higher levels of differentiation than did the opposite method (M = 7.50; SD = 4.06), F (1, 273) = 11.96; p < .001. Therefore, Hypothesis 2 was supported.

Hypothesis 3. Hypothesis 3 predicted that varying the valence of the element set (all-positive vs. split-valenced) would significantly affect construct differentiation. Although the all-positive element sets yielded higher levels of differentiation (M = 8.45; SD = 4.17) than did the split-valenced element sets (M = 8.28; SD = 3.97), results of the ANOVA revealed that the difference was not statistically significant, F (1, 273) = 0.36, ns. Therefore, Hypothesis 3 was not supported.

Hypothesis 4. Hypothesis 4 predicted that varying the rating direction on the grid (element-by-element vs. construct-by-construct) would significantly affect construct differentiation. Although rating on an element-by-element basis yielded higher levels of differentiation (M = 8.49; SD = 4.19) than did rating on a construct-by-construct basis (M = 8.24; SD = 3.96), results of the ANOVA revealed that the difference was not statistically significant, F (1, 273) = 0.41, ns. Therefore, Hypothesis 4 was not supported.

Interaction Effects. Results of the ANOVA revealed a significant two-way interaction between elicitation method (difference vs. opposite) and element valence (all-positive vs. split-valenced), F (1, 273) = 15.84, p < .0001. The results also revealed a significant three-way interaction among elicitation method (difference vs. opposite), sorting technique (triadic vs. dyadic), and rating direction (element-by-element vs. construct-by-construct), F (1, 273) = 4.53, p < .034. No other statistically significant interaction effects were found.

The results of the main effect for elicitation method (difference vs. opposite) indicated that, overall, the difference method of elicitation generated significantly higher levels of differentiation than did the opposite method. But this main effect was qualified by the interaction between elicitation method (difference vs. opposite) and element valence (all-positive vs. split-valenced). As depicted in Figure 1, the nature of this interaction was that there was a significant difference in the levels of construct differentiation associated with the rating of all positive elements, but no significant difference when the elements consisted of a split-valenced element set. The use of an all-positive element set was associated with significantly higher levels of differentiation when the difference method of elicitation was used (M = 10.28; SD = 4.22), compared to when the opposite method of elicitation was used (M = 6.67; SD = 4.07), t (145) = -5.28, p < .0001. By contrast, when the element set consisted of split-valenced elements, the opposite (M = 8.41; SD = 3.87) and difference (M = 8.03; SD = 4.12) methods yielded similar levels of construct system differentiation (see Figure 1).

The nature of the three-way interaction between Elicitation Method, Sorting Technique, and Rating Direction is depicted in Figure 2, and the means and standard deviations for all of the conditions are presented in Table 1. As Figure 2 indicates, the effects of elicitation method (opposite vs. difference) and sorting technique (triadic vs. dyadic) depend on the rating direction (element-by-element vs. construct-by-construct). The interaction is driven by a single condition, the triadic/difference method. In all other conditions, rating direction had no significant effect on levels of differentiation, registering less than a one-point difference between the element-by-element and construct-by-construct versions of the respective repertory grid variations. Specifically, there were no significant differences between the levels of differentiation associated with the two different rating directions for the triadic/opposite (element-by-

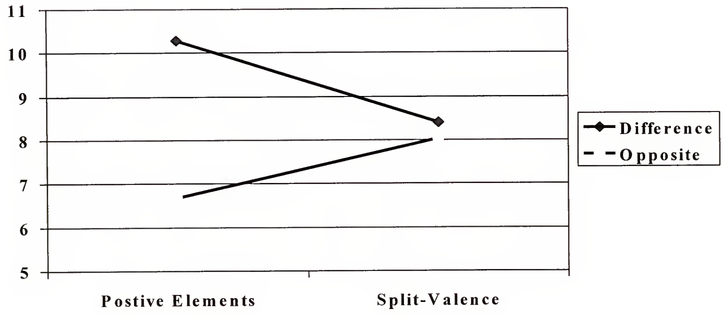

Figure 1: Mean Differentiation Scores as a Function of Elicitation Method and Element Valence

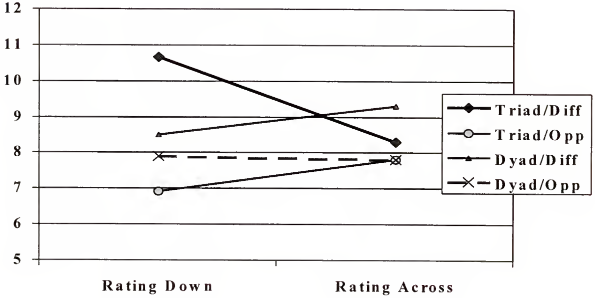

Figure 2: Mean Differentiation Scores as a Function of Elicitation Method, Sort Technique and Rating Direction

Note: Triad/Diff = triadic sorts/difference method; Triad/Opp = triadic sorts/opposite method; Dyad/Diff = dyadic sorts/difference method; Dyad/Opp = dyadic sorts/opposite method

element = 6.92; construct-by-construct = 7.4), the dyadic/opposite (element-by-element = 7.9; construct-by-construct = 7.8), or the dyadic/difference methods (element-by-element = 8.5; construct-by-construct = 9.3). For the triadic/difference method, however, rating on an element-by-element basis was associated with significantly higher levels of differentiation (M = 10.67) than rating on a construct-by-construct basis (M = 8.29), t (72) = 2.40, p < .02.

Post-hoc Analyses. Because previous research has addressed the concept of "bent constructs" (Yorke, 1983), a post-hoc analysis was conducted to determine the relative numbers of bent constructs across grid variations in the current study. A bent construct is one in which one of the poles of the construct is not an objective contrast or opposite of the other pole; rather, it is apparently a pole of a different construct altogether (e.g., "intelligent" vs. "selfish;" Yorke, 1983).

Theoretically, higher numbers of bent constructs would be associated with an instructional set that asks for differences rather than opposites in eliciting constructs. Difference methods require that an element on the grid be used to describe the contrast pole and thereby provide an opportunity for participants to nominate contrast poles that belong to different constructs. For example, a participant responding to instructions in a triadic difference elicitation condition may say, "Jane and Bob are both intelligent, and Bill is selfish." By contrast, opposite methods of elicitation, which do not provide this opportunity, would yield lower numbers of bent constructs. Support for this notion was offered by Epting et al. (1971), who found that the triadic opposite method of elicitation produced more bipolar (i.e., less bent) constructs than did the triadic difference method.

To determine relative numbers of bent constructs in the current study, two research assistants, blind to experimental condition, rated all constructs as either "bent" or "straight" following recommendations by Yorke (1983). An analysis of inter-rater agreement was conducted using a simple kappa coefficient (Cohen, 1960), and results revealed a substantial level of agreement between raters, $\underline{k} = .72$ (Landis & Koch, 1977). Only constructs that both raters agreed were bent were summed to determine a total number of bent constructs for each grid. A three-way ANOVA was conducted to determine whether there were significant differences in total numbers of bent constructs among the four factors involved in the study. Results revealed a significant difference only between difference and opposite methods of elicitation generally, and a one-way ANOVA was conducted with elicitation method (difference vs. opposite) as the between-subjects factor. Results revealed that difference methods of elicitation produced significantly higher numbers of bent constructs per grid ($\underline{M} = .43$; $\underline{SD} = .60$; $\underline{N} = 144$) than did opposite methods of elicitation ($\underline{M} = .13$; $\underline{SD} = .35$; $\underline{N} = 145$), $\underline{F} = 27.42$, $\underline{p} < .0001$. These and the aforementioned results are discussed in the following chapter.

CHAPTER 5
DISCUSSION

The results of this study provide a variety of support for previous findings concerning the effects of repertory grid variations, while they qualify the generalizability of others. Three effects are particularly noteworthy. The first concerns the now well-documented effect of elicitation method (difference vs. opposite) on levels of construct system differentiation; the second has to do with the qualifications placed on this effect according to the valence of the elements used in the grid (positive or split-valenced); and the third concerns the differential impact of rating direction (construct-by-construct vs. element-by-element) according to the particular elicitation method (difference vs. opposite) and sorting technique (dyadic vs. triadic) used in the repertory grid procedure.

Regarding the first of these, the present study provides a further replication of the differential impact of elicitation method on levels of construct system differentiation. In general, the use of Kelly's (1955) original difference method of construct elicitation was associated with significantly higher levels of differentiation than was the opposite method. This finding is consistent with the findings of a number independent studies that have noted a similar effect. Caputi and Reddy (1999), for example, compared the levels of differentiation associated with dyadic/difference grids with triadic/opposite ones, and found significantly higher levels of differentiation associated with the difference method. Hagans et al. (2000) reported the results of two studies demonstrating that the "difference method again yielded significantly higher levels of differentiation" (p. 168) than did the opposite method. And the work by G. Neimeyer et al. (in press) reported a series of studies that provided consistent support for this same effect. In short, the literature now provides compelling evidence regarding the differential impact of elicitation method on levels of differentiation. The results of these studies converge upon the conclusion that Kelly's (1955) original difference method yields higher levels of personal construct system differentiation than does the alternative, opposite method of construct elicitation.

Two related explanations for this effect have been advanced in the literature, together with the rationale and evidence in support of them (see G. Neimeyer et al., in press). One explanation concerns the procedural requirement in the difference method that both poles of the construct are developed from, and therefore applicable to, particular elements in the grid. For example, by asking participants to identify "how any two of these people are alike and different from the third," the difference method assures that both poles of the construct will apply to elements on the grid. By contrast, the opposite method does not stipulate such a requirement, allowing the "opposite" pole of the construct to apply to none of the elements on the grid. The result is that all elements might be rated along the same side of the construct in the opposite method, reducing the levels of differentiation associated with the grid. This explanation represents a form of a procedural confound where the differences between the elicitation methods account for the differential levels of construct system differentiation that follow from them.

A second explanation favors the qualitatively different contrast poles elicited by the opposite method, and argues that the lower levels of differentiation are a direct result of these differences. Specifically, as Hagans et al. (2000) noted, the opposite method yields more extreme and negative contrast poles, thereby reducing the likelihood that these poles would be applied as often to the elements in the grid. For example, instructions to produce the opposite to "kind and considerate" may invite an extreme and highly polarized contrast such as "cruel and malicious." In contrast, instructions simply to identify a difference (i.e., "how are two elements alike and different from a third") might invite a less extreme characterization (e.g., "inconsiderate"). The more extreme and negative nature of the contrasts produced by the opposite method may make these contrast poles less applicable to the elements in the grid, thereby producing a similar effect of promoting ratings along only one construct pole.

Recent work by Hagans et al. (2000) has provided evidence to this effect. They found that the opposite method did, in fact, generate more extreme and "socially undesirable" contrast poles, and that the level of "undesirability" was inversely related to levels of differentiation. In other words, the more extreme and negative the contrast poles were in the grid, the lower the levels of differentiation within the grids. In effect, this explanation for the differential levels of differentiation associated with the two elicitation methods represents a construct valence bias. Unlike the difference method, the opposite method invites more extreme and negative contrasts which, in turn, discourages participants from applying them to the particular elements in their grid.

Importantly, Hagans et al. (2000) noted that the element sets used in their research were not controlled, and that systematic variation of element valence could further clarify or support this explanation. In particular, if the "construct valence" explanation is a viable one, then its effect should be maximized within the context of uniformly positive elements. In the context of all positive elements, the more extreme and negative contrast poles generated by the opposite method would be least likely to be applied, resulting in significantly lower levels of differentiation. In contrast, in the context of a split-valence element set (i.e., some positive elements and some negative elements), the difference between the elicitation methods should be minimized because the extreme negative poles would presumably be more applicable to the negative elements in the grid.

This is precisely the pattern of effects found in the interaction between elicitation method (opposite vs. difference) and element valence (positive vs. split-valenced) in the current study. As Figure 1 indicates, the differences between the opposite and difference methods of elicitation are significant only when the element set is uniformly positive. When the element set includes a mixed set of positive and negative figures, these differences disappear.

The nature of this interaction is consistent with the explanation advanced by Hagans et al. (2000) regarding the valence of the element set, and favors this explanation over the procedural confound explanation outlined above. Specifically, it supports the notion that the reduced levels of differentiation associated with the opposite method of construct elicitation follows from the more extreme and negative contrast poles that it invites in the development of the constructs themselves. This is an important finding because it adjudicates between two alternative explanations regarding the cause of the differential differentiation effect. If the "procedural confound" explanation were correct, this differential effect should be present in the split-valence, as well as the positive element condition; but it is not. In other words, if the reason for the decreased levels of differentiation in the opposite method were exclusively related to the permission that it gives to develop a contrast pole that applies to none of the elements in the grid, then the opposite method should yield lower levels of differentiation regardless of the valence of the elements. The reduced levels of differentiation instead would simply owe to the absence of any requirement that the contrast pole applies to one or more grid elements. The pattern of the effect in this study, however, is not consistent with this prediction. Instead, it favors the "construct valence" interpretation first advanced by Hagans et al. (2000). The importance of this interpretation is twofold. First, it qualifies the concern regarding differences between the opposite and difference methods of construct elicitation, at least in relation to levels of construct system differentiation. If the "procedural confound" explanation were to prevail, then differential levels of differentiation would be expected to occur in all variations of grid forms using the opposite and difference methods of construct elicitation. In short, differential differentiation would be endemic to the grid methods, following as a direct consequence of the procedural differences between them. Instead, it appears as though they are a result of the development of more extreme and negative contrast poles, and that these differences disappear in contexts that utilize a range of elements that include positive and negative figures. In itself, this restricts the generalizability of the effect of elicitation method (opposite vs. difference), even as it provides an explanation for it.

In addition to the qualification that it places on the generalizability of the differentiation effect, there is a second reason that this effect is noteworthy. In short, because it identifies the particular mechanism that may account for the decrement in levels of differentiation, it also suggests mechanisms for minimizing or eliminating this effect. One modification might consist of rewording the opposite method to invite participants to consider developing a "contrast to" rather than an "opposite of" the emergent pole of the construct. As an example, consider the difference between the following instructions in relation to developing a contrast to a given emergent pole, such as “intelligent.” In the case of the opposite method, an individual would be asked, “what is the opposite of intelligent for you?” to which he or she might respond, “stupid” or “dumb.” In the case of the contrast method, however, the instructional set might ask the person to indicate “‘intelligent’ in contrast to what?” or “‘intelligent’ compared to what?” This form of the question involves a subtle linguistic variation that may invite a less extreme contrast such as “less intelligent” or “not as bright,” although future research would need to address this possibility. Importantly, this kind of instructional variation might eliminate the valence differences between the difference and opposite methods, while still preserving the advantages associated with the latter. These advantages include the relative simplicity of the opposite procedure, owing to the fewer restrictions it places on the generation of the contrast poles. In other words, this “contrast” variation would permit the contrast pole to fall outside the range of convenience of the current element set (just as the opposite method does), but would at the same time invite less extreme, negative contrasts, which now seem to be the primary agent in accounting for the lower levels of construct system differentiation associated with the opposite method of elicitation.

Beyond the interaction between elicitation method and element valence, the results of the current study also found a three-way interaction between elicitation method, sorting technique, and rating direction. As Figure 2 indicates, this three-way interaction is driven by the differential impact of rating direction in the triadic difference grids. No other grid form (triadic opposite, dyadic difference, dyadic opposite) showed significant variation in differentiation scores as a result of changes in rating direction. But the effect within the triadic difference condition was pronounced, with the element-by-element ratings showing significantly higher levels of construct system differentiation than the construct-by-construct ratings. On the one hand, this effect provides important qualifications regarding the concerns that have been raised about the effects of rating direction (Costigan et al., 1991; Epting et al., 1992), because it restricts them to one particular type of grid. Results of the current research suggest that these effects do not extend across the variety of other grid variations studied, but instead are limited to triadic difference grids.

On the other hand, the triadic difference grid is the original form of the Role Construct Repertory Test (Kelly, 1955), and it remains the most common form of the reptest in use today. Although Kelly (1955) proposed a number of variations in reptest methodology (Epting et al., 1993), and subsequent research has generated a still-wider range of adaptations (Fransella & Bannister, 1977), the triadic difference method remains the single most common form of repertory grid technique appearing in the literature. So the effects of rating direction noted in the present study apply to the most prominent version of the grid in use throughout the nearly 50 years since the instrument's development. Moreover, because these effects are consistent with the findings of Epting et al. (1992) and G. Neimeyer et al. (in press), it seems safe to conclude, at least provisionally, that these are reliable and consistent effects worthy of further attention.

Among the issues that warrant additional attention are definitive explanations of the effect. In the earliest work in this area, Costigan et al. (1991) proposed that rating on a construct-by-construct basis rather than an element-by-element basis would decrease construct differentiation because it would invite comparisons among different ratings of elements along each construct, suppressing differences among them. Epting et al. (1992)

offered the same explanation of this effect. But in both studies, the direction of the ratings were confounded with the visibility of the ratings; when rating on an element-by-element basis, participants were not given access to their previous ratings, whereas they did have access to these ratings in the construct-by-construct condition. Given this difference, it was reasonable to assume that the availability of all of the ratings might have a suppressing effect on levels of differentiation. But recent work (G. Neimeyer et al., in press) has found the same effect for rating direction even when all ratings are visible to participants throughout the rating procedure, regardless of whether they are rating on an element-by-element basis or on a construct-by-construct basis. In describing this effect, G. Neimeyer et al. (in press) noted that these results "indicate that these differences are due simply to the direction in which the ratings are performed, rather than to the access to prior ratings. In other words, even when individuals have complete access to all of their prior grid ratings, levels of differentiation are higher when ratings are completed on an element-by-element basis than when they are completed on a construct-by-construct basis. This suggests that these two different rating directions engage somewhat different comparative processes, and that the nature of the comparisons determines the higher differentiation associated with the element-by-element ratings" (p. 38). Beyond that, a precise formulation of this comparative difference has not yet been advanced or tested, leaving it for future work to clarify the mechanism and document its operation.

Among the possible mechanisms that may merit attention is the difference between the relatively "public" nature of the construct-by-construct ratings, in contrast to the relatively "private" ratings that are invited in the element-by-element ratings. In a sense, when rating on a construct-by-construct basis, the whole social field is invoked in a given row of ratings. In other words, participants are evaluating all elements in relation to a given construct, asking themselves how “trustworthy” each is, and so on, before moving to the second construct to evaluate each figure along. By contrast, rating on an element-by-element basis may invite a relative sense of confidentiality or privacy, where a given element is rated only in relation to him or herself in succession along the full range of constructs, before moving to rate the next person along those dimensions. It may be, for example, that individuals are more willing to assign negative poles of their constructs to an individual when this assignment occurs in the context of a balance sheet of other “pluses and minuses.” Within the context of rating a given element in otherwise favorable terms, the assignment of one or more negative ratings may not feel, on balance, as unfavorable as it would if the negative assignment were made by itself, without the broader context of generally favorable assignments. By contrast, this “balancing out” of the positives and negatives may not be as prominent when rating on a construct-by-construct basis, wherein the focus is drawn away from the other ways in which a given element has been rated, and focused instead on how he or she is situated among the remainder of the interpersonal field. But this and other possible explanations remain speculative at this time, and need to be addressed within the context of future work directed at developing and testing a more definitive explanation of this effect.

Recommendations

The results of the current study demonstrate that difference methods of construct elicitation produce higher levels of differentiation and more bent constructs than do opposite methods, though further research is necessary to determine whether levels of differentiation are artificially inflated by difference methods or artificially deflated by opposite methods. Given the results of the current study, however, tentative recommendations for the administration of the repertory grid are warranted:

1. It would benefit those who use the repertory grid for the primary purpose of qualitative analyses of personal constructs to use the difference method of construct elicitation. The difference method preserves participants' ability to provide a "bent" construct with possible idiosyncratic meaning that may otherwise be obscured by opposite methods of elicitation. For example, the construct "intelligent vs. selfish," although presumably bent, may represent constellatory construing (Kelly, 1955) whereby, in the participant's idiosyncratic worldview, most people who are "intelligent" are also "generous," and most people who are "unintelligent" are also "selfish." The gathering of such information about the participant's idiosyncratic worldview may be obscured by an opposite method of elicitation that encourages him or her to nominate "unintelligent" or "stupid" as the contrast pole of "intelligent."
2. It would benefit those who use the repertory grid for the primary purpose of quantitative analyses of personal constructs to use a "triadic contrast" method of elicitation with a split-valenced element set. In contrast to the triadic difference method, which is sometimes problematic because of its relative complexity (cf., Landfield, 1971), the triadic contrast method consists of the following steps:
    A. Participants are instructed to think of an important way in which any two of the three elements are alike and thereby different from the third.
    B. Having nominated a likeness between two of the three elements – "intelligent," for example – participants are then asked to nominate a contrast of the likeness

pole of the construct with the question, "'intelligent' in contrast to what?," for example.

C. Participants are then asked whether the contrast pole characterizes any of the elements on the grid. If it does not, participants are asked to formulate a new likeness pole, and the process is repeated.

D. If the contrast pole does characterize an element on the grid, a modification of Hunt's (1951) procedure for minimizing bent constructs is then used in which participants are asked to verbalize the contrasting quality of the construct poles just elicited. Given the construct of "intelligent vs. selfish," for example, a participant is asked, "Is a person who is intelligent almost never selfish?," and "Is a person who is selfish almost never intelligent?" If the participant answers these questions affirmatively, the construct is recorded and the next triadic sort would be introduced. If they are answered negatively, the participant is asked to formulate a new likeness pole, and the foregoing procedure would be repeated until the grid is completed.

The preceding instructions are designed to accomplish four goals: 1) maintenance of Kelly's (1955) emphasis on the "minimum context" (i.e., triadic) form of construct elicitation, which corresponds to Kelly's (1955) Construction Corollary; 2) minimization of bent constructs by assessing for and eliminating them during the elicitation process (i.e., Hunt, 1951); 3) minimization of socially undesirable contrast poles by the use of the phrase "in contrast to" rather than "the opposite of"; and 4) maximization of the applicability of both poles of each construct to the elements in the grid. Each of these features is designed to minimize possible artificial inflation and deflation of construct differentiation scores, though future research is needed to determine the effectiveness of the "triadic contrast" procedure in accomplishing these goals. Additionally, the split-valenced element set included in this approach serves to maximize the applicability of both construct poles to elements on the grid, though future research is also needed to determine the effectiveness of this feature when embedded within the "triadic contrast" procedure.

Conclusion

The results of this study provide support for the larger literature concerning repertory grid effects, and they encourage ongoing "reflexive scrutiny" (G. Neimeyer, 2002) regarding variations in this methodology. Minimally, they underscore the likelihood that variations in repertory grid methods can register a significant impact on the nature and structure of the construct system that is generated. The method of construct elicitation (difference vs. opposite) significantly influences the levels of differentiation associated with the personal construct system, at least when the element set is largely positive. Moreover, the interactive effects of repertory grid variations, even subtle ones such as the direction in which ratings are performed, raise significant concerns regarding various adaptations of the technique. It is clear from the present findings that the interaction effects associated with various repertory grid adaptations mean that the effects of a given variation may well change, depending on other features of the grid. It is important to emphasize that these findings in themselves do not justify the preference for one repertory grid method over another, but they do provide a collective warrant for clear specification and critical reflection concerning the type of repertory grid chosen for use in a given research initiative. Together with a wide range of other data bearing on aspects of repertory grid variations, the current work suggests the ongoing value of future research directed at clarifying the sometimes substantial impact of apparently minor variations in the features or procedures of repertory grid methodology.

APPENDIX
INSTRUCTIONS FOR PARTICIPANTS

Element Set

Positive Valence. Think about a set of 10 different people who you know personally, and generally like. These can be family, friends, boy/girlfriends, acquaintances, or others. The only restriction is that you must know them personally and you must generally like them.

Split-valence. Think about a set of 5 different people who you know personally, and generally dislike. These can be family, former friends, ex boy/girlfriends, acquaintances, or others. The only restriction is that you must know them personally and you must generally dislike them.

Rating Direction

Element-by-element. Using the scale below, rate one person at a time along each of the 10 dimensions before moving on to the rate the second element along each of the 10 dimensions, and so on.

Construct-by-construct. Using the scale below, rate each of the 10 people on the grid along a given construct before moving on to rate the set of 10 people along the second dimension, and so on.

Sorting Technique/Elicitation Method

Triadic Difference. Identify any way in which two of the elements are alike and thereby different from the third.

Triadic Opposite. Identify any way in which any two of the elements are alike, and then record the opposite of that likeness in the blank on the opposite side of the same row.

Dyadic Difference. Identify any way in which these two people are either alike or different. If you identify a likeness between them, find another person in the grid and describe how they are different in this regard.

Dyadic Opposite. Identify any way in which these two people are alike or opposite. If you identify a likeness between them, record the opposite of that likeness in the blank on the opposite side of the same row.

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BIOGRAPHICAL SKETCH

I received a Bachelor of Arts degree from Florida International University in 1995 and entered graduate school in Counseling Psychology at the University of Florida in 1996. I spent most of my graduate career focusing on teaching psychology, and I was the first graduate student in the 30-year history of the Department of Psychology to teach four different undergraduate courses. I have accepted an offer of a faculty position in the Department of Psychology at the University of Central Florida, which I plan to begin in August of 2002. I plan to make my career teaching and writing about existential psychology and its effects on the human mind-body.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and in quality, as a dissertation for the degree of Doctor of Philosophy.

Franz R. Epting
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and in quality, as a dissertation for the degree of Doctor of Philosophy.

Greg J. Neimeyer
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and in quality, as a dissertation for the degree of Doctor of Philosophy.

Robert C. Ziller
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and in quality, as a dissertation for the degree of Doctor of Philosophy.

James L. Morgan
Clinical Professor

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and in quality, as a dissertation for the degree of Doctor of Philosophy.

Peter A. Sherrard
Associate Professor of Counselor
Education

This dissertation was submitted to the Graduate Faculty of the Department of Psychology in the College of Liberal Arts and Sciences and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Dean, Graduate School